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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,763	08/20/2001	Masanori Nakamura	107318-00004	6959

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EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/931,763	NAKAMURA ET AL.
	Examiner	Art Unit
	John L. Goff	1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/355,946.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/04 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 13 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Gash (U.S. Patent 4,355,076) as evidenced by the admitted prior art (Specification page 7, lines 17-23).

It is noted the admitted prior art is used only as evidence of an inherent property of the materials taught by Gash such that its inclusion in the 35 U.S.C. 102(b) rejection is proper (See MPEP 2112).

Gash discloses a method for dry laminating at least two plastic films of same or different nature (i.e. each film may be oriented or unoriented and the films may have different melting points) wherein the method comprises contacting the films and heat pressing the films up to the melting temperature of the film having the lowest melting point to bond the films and form a low

peel strength composite. Gash teaches the plastic films may comprise oriented polyolefins including high-density polyethylene (Column 1, lines 6-16 and Column 2, lines 25-27, 39-41, 46-50, and 55-68 and Column 3, lines 1-12). Gash does not specifically disclose that the oriented polyolefin films have an average coefficient of linear expansion (LEC) not exceeding $5x10^{-5}$ (/°C) in the 20-80 °C temperature range. However, it is noted the oriented polyolefin materials employed in Gash, particularly oriented high-density polyethylene, are the same as those claimed by applicant, and they are consistent and in agreement with applicants specification including applicants preferred materials (Page 9, lines 7-11) such that it appears an average LEC not exceeding $5x10^{-5}$ (/°C) in the 20-80 °C is inherent to the oriented polyolefin materials taught by Gash. Furthermore, the admitted prior art (Applicants specification page 7, lines 13-23) discloses "An average linear expansion coefficient of polyolefin in an unoriented state is generally greater than $5x10^{-5}$ (/°C) in the 20-80 °C range. Due to the inclusion of the oriented polyolefin material, the polyolefin article of the present invention exhibits a value of not exceeding $5x10^{-5}$ (/°C) for average coefficient of linear expansion in the in the 20-80 °C range, as specified above. In other words, the oriented polyolefin material is included in the polyolefin article so that its average coefficient of linear expansion in the 20-80 °C range is maintained at a value of not exceeding $5x10^{-5}$ (/°C)" (Emphasis added). Thus, in view of the admitted prior art it appears it is unoriented polyolefin materials that have average LEC values greater than $5x10^{-5}$ (/°C) in the 20-80 °C range while oriented polyolefin materials exhibit average LEC values not exceeding $5x10^{-5}$ (/°C) such that the admitted prior art is evidence that the claimed LEC values are inherent to the oriented polyolefin materials taught by Gash.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gash and the admitted prior art as applied to claims 13 and 27 above, and further in view of Ikenaga et al. (U.S. Patent 4,717,624).

Gash and the admitted prior art as applied above teach all of the limitations in claim 14 except for a teaching on using as the oriented polyolefin sheets one having a minus average coefficient of linear expansion (LEC) and one having a plus average LEC. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the oriented polyolefin sheets taught by Gash as modified by the admitted prior art oriented sheets having alternating plus and minus average LEC values to form laminated composites with improved dimensional stability as suggested by Ikenaga et al.

Ikenaga et al. disclose bonded composites (e.g. including polyolefin containing) comprising a plurality of stacked sheets. Ikenaga et al. teach the stacked and bonded sheets comprise alternating oriented sheets having minus values for the average coefficient of linear expansion (LEC) next to oriented or unoriented sheets having plus values for the average LEC

wherein the alternating arrangement of plus and minus values for the average LEC give the bonded composites improved dimensional stability (Column 1, lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and Column 12, lines 41-53).

6. Claims 15, 16, 19, 21, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gash and the admitted prior art as applied to claims 13 and 27 above, and further in view of Barham et al. (U.S. Patent 4,311,660).

Gash and the admitted prior art as applied above teach all of the limitations in claims 15, 16, 19, 21, 22, and 26 except for a teaching on heat-treating the oriented polyolefin films. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat-treat the oriented polyolefin films taught by Gash as modified by the admitted prior art after they are oriented as was well known in the art to provide the films with increased dimensional stability as shown for example by Barham et al.

Barham et al. disclose heat-treating oriented polyolefin films after they are oriented to give the films improved dimensional stability. Barham et al. teach the polyolefin films pass through a heat-treatment station, for example heated rollers, wherein the surfaces of the films are heated up to a temperature exceeding the normal crystalline melting temperature of the polyolefin followed by immediate cooling. (Column 1, lines 15-21 and Column 3, lines 58-68 and Column 5, lines 33-37 and 49-54).

Regarding claim 16, one of ordinary skill in the art at the time the invention was made would readily expect the oriented polyolefin films taught by Gash as modified by the admitted prior art and Barham et al. to have the same melting point ranges following the heat-treatment as those currently claimed as the oriented polyolefin films taught by Gash as modified by the

admitted prior art and Barham et al. are the same as those claimed by applicant, they are consistent and in agreement with applicants specification, and the oriented polyolefin films undergo the same heat treatment as that taught by applicant.

7. Claims 17, 18, 20, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gash, the admitted prior art, and Ikenaga et al. as applied to claim 14 above, and further in view of Barham et al. (U.S. Patent 4,311,660).

Gash, the admitted prior art, and Ikenaga et al. as applied above teach all of the limitations in claims 17, 18, 20, 23, and 24 except for a teaching on heat-treating the oriented polyolefin films. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat-treat the oriented polyolefin films taught by Gash as modified by the admitted prior art and Ikenaga et al. after they are oriented as was well known in the art to provide the films with increased dimensional stability as shown for example by Barham et al. (Barham et al. is described above).

Regarding claim 18, one of ordinary skill in the art at the time the invention was made would readily expect the oriented polyolefin films taught by Gash as modified by the admitted prior art, Ikenaga et al., and Barham et al. to have the same melting point ranges following the heat-treatment as those currently claimed as the oriented polyolefin films taught by Gash as modified by the admitted prior art, Ikenaga et al., and Barham et al. are the same as those claimed by applicant, they are consistent and in agreement with applicants specification, and the oriented polyolefin films undergo the same heat treatment as that taught by applicant.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gash and the admitted prior art as applied to claims 13 and 27 above, and further in view of Bruno (U.S. Patent 3,361,607).

Gash and the admitted prior art as applied above teach all of the limitations in claim 25 except for a teaching on the temperature at which the polyolefin films are oriented. However, it is well known in the art that the orientation temperature is a function of the amount of orientation desired, as shown for example by Bruno, such that it would have been well within the ordinary skill of one in the art at the time the invention was made to experimentally determine/optimize the required orientation temperature depending upon the amount of orientation desired as doing so would require nothing more than ordinary skill and routine experimentation. Furthermore, it is well known in the art to orient polyolefin materials over the claimed temperature range as shown for example by Bruno such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to orient the polyolefin materials taught by Gash as modified by the admitted prior art within a temperature range of 95-115 °C as only the expected results would be achieved.

Bruno discloses bonding oriented polyolefin films that have been subjected to a heat-treatment. Bruno teaches the polyolefin films are oriented within a temperature range of 95-115°C. However, Bruno further teaches that the amount of orientation, i.e. stretch, and temperature at which the orientation is carried out are interrelated. (Column 3, lines 62-70).

Response to Arguments

9. Applicant's arguments with respect to claims 13-27 have been considered but are moot in view of the new ground(s) of rejection. Regarding applicants arguments to the average LEC value, as noted above the oriented polyolefin materials employed in Gash, particularly oriented high-density polyethylene, are the same as those claimed by applicant, and they are consistent and in agreement with applicants specification including applicants preferred materials (Page 9, lines 7-11) such that it appears an average LEC not exceeding $5x10^{-5}$ (/°C) in the 20-80 °C is inherent to the oriented polyolefin materials taught by Gash. Furthermore, the admitted prior art (Applicants specification page 7, lines 13-23) discloses "An average linear expansion coefficient of polyolefin in an unoriented state is generally greater than $5x10^{-5}$ (/°C) in the 20-80 °C range. Due to the inclusion of the oriented polyolefin material, the polyolefin article of the present invention exhibits a value of not exceeding $5x10^{-5}$ (/°C) for average coefficient of linear expansion in the in the 20-80 °C range, as specified above. In other words, the oriented polyolefin material is included in the polyolefin article so that its average coefficient of linear expansion in the 20-80 °C range is maintained at a value of not exceeding $5x10^{-5}$ (/°C)" (Emphasis added). Thus, in view of the admitted prior art it appears it is unoriented polyolefin materials that have average LEC values greater than $5x10^{-5}$ (/°C) in the 20-80 °C range while oriented polyolefin materials exhibit average LEC values not exceeding $5x10^{-5}$ (/°C) such that the admitted prior art is evidence that the claimed LEC values are inherent to the oriented polyolefin materials taught by Gash. As to Ikenaga et al., applicant refers to comparative examples 4-12 as a teaching of oriented layers possessing an average LEC exceeding $5x10^{-5}$ (/°C). However, the oriented layers in comparative examples 4-12 of Ikenaga et al. all posses an

average LEC lower than $5x10^{-5}$ (/°C). This is clearly shown in Table 2 under the column "Neg lin exp coef layer". In fact, it is the unoriented layers that possess an average LEC exceeding $5x10^{-5}$ (/°C). This is shown in Table 2 under the column "Pos lin exp coef layer". Furthermore, it is noted every oriented layer in examples 1-18 taught by Ikenaga et al. possess an average LEC not exceeding $5x10^{-5}$ (/°C) (as shown in Tables 1 and 2) such that Ikenaga et al. is further evidence of the oriented layers taught by Gash inherently having the claimed LEC values.

Regarding applicants arguments that Gash employs orientation temperatures exceeding 120 °C, it is noted this argument is not commensurate in scope with Claim 13. Additionally, Gash does not teach orienting the polyolefin sheets over a temperature of 60-180 °C. Gash teaches bonding previously oriented polyolefin sheets at temperatures of 80 to 120 °C to form a low peel strength composite, and Gash teaches the temperatures used do not affect the orientation of the films (Column 2, lines 31-34). Gash is silent as to the temperature used to orient the polyolefin sheets. However, this deficiency is addressed above in the rejection of claim 25 in the reference to Bruno. Bruno discloses polyolefin films are oriented over a temperature range of 95-115°C, and Bruno further teaches that the amount of orientation and temperature at which the orientation is carried out are interrelated such that determining the orientation temperature for the polyolefin sheets taught by Gash as modified by the admitted prior art and Bruno is obvious.

Regarding applicants arguments to the pre-treatment in Gash, it is noted Gash refers to pre-treatment as treating the surfaces to enhance adhesion through mechanisms such as electrical discharge or corona discharge (Column 1, lines 51-68 and Column 2, lines 1-3). Barham et al. are not concerned with heat treating the surfaces of an oriented polyolefin to enhance adhesion,

rather Barham et al. disclose that after a polyolefin film is oriented the film has undesirable high shrinkage at elevated temperatures. Barham et al. then disclose a heat-treating process (such as contacting with a heated roller) for improving the dimensional stability of the oriented polyolefin film. Thus, the heat-treating process taught by Barham et al. is not a pre-treatment process excluded by Gash, and further it would have been obvious to incorporate the heat-treating process taught by Barham et al. in Gash to improve the dimensional stability of the oriented polyolefin sheets.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John L. Goff

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